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FILE 'REGISTRY' ENTERED AT 14:27:05 ON 08 JUL 2009
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FILE 'HCA' ENTERED AT 08:41:32 ON 08 JUL 2009
E US20070093644/PN
L1 1 S E3
SEL L1 RN

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L2 5 S E1-5

FILE 'REGISTRY' ENTERED AT 09:02:54 ON 08 JUL 2009
L3 STR

FILE 'REGISTRY' ENTERED AT 09:06:26 ON 08 JUL 2009
L4 SCR 2043
L5 0 S L3 AND L4
L6 7 S L3
E D-FRUCTOSE/CN
L7 1 S E3
L8 2513 S (M (L) F)/ELS (L) 2/ELC.SUB
L9 STR L3
L10 4 S L9
L11 STR L9
L12 4 S L11
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L15 STR L13

FILE 'REGISTRY' ENTERED AT 13:17:10 ON 08 JUL 2009
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L17 50 S L15
L18 3241 S L15 FUL
SAV L18 FAN752/A
E L-FRUCTOSE/CN
L19 1 S E3
E DL-FRUCTOSE/CN
L20 1 S E3
E FRUCTOSE/CN
L21 2 S E3
L22 3 S L7 OR L19 OR L20 OR L21

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 L36 4163 S L18
 L37 38132 S L22
 L38 141 S L36 AND L37
 E POLYANILINES/CT
 L39 10256 S E3
 L40 7 S L38 AND L39
 L41 18252 S POLYANILIN?
 L42 12 S L38 AND L41
 L43 12 S L40 OR L42
 L44 1150 S POLY (2A) ANILIN?
 L45 9 S L38 AND L44
 L46 13 S L43 OR L45
 L47 8 S 1808-2004/PY,PRY,AY AND L46
 L48 132816 S L8
 L49 6 S L36 AND L37 AND L48
 L50 3 S 1808-2004/PY,PRY,AY AND L49
 L51 8 S L47 OR L50

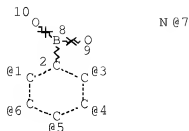
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=> D L18 QUE STAT

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VPA 7-3/4/5/6/1 U

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NSPEC IS RC AT 9

NSPEC IS RC AT 10

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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 10

STEREO ATTRIBUTES: NONE

L18 3241 SEA FILE=REGISTRY SSS FUL L15

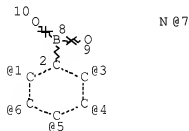
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3241 ANSWERS

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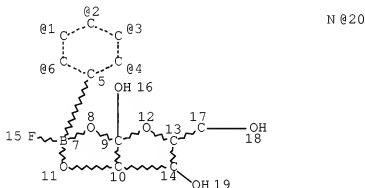
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STEREO ATTRIBUTES: NONE
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L31 STR



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NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 20

STEREO ATTRIBUTES: NONE
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SEARCH TIME: 00.00.01

=> FIL HCA
FILE 'HCA' ENTERED AT 14:27:41 ON 08 JUL 2009
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=> D L51 1-8 IBIB ABS HITSTR HITIND RE

L51 ANSWER 1 OF 8 HCA COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 144:403489 HCA Full-text
 TITLE: Electrochemically fabricated conducting polymer
 nanowire sensors
 INVENTOR(S): Tseng, Hsian-Rong; Wang, Jun; Alam, Maksudul;
 Guo, Yaoyao
 PATENT ASSIGNEE(S): The Regents of the University of California, USA
 SOURCE: PCT Int. Appl., 46 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006042276	A2	20060420	WO 2005-US36671	20051012

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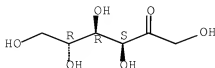
WO 2006042276 A3 20070329
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 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM,
 KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,
 MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO,
 RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ,
 UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
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PRIORITY APPLN. INFO.: US 2004-618421P P 20041012

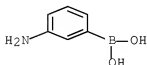
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AB Resistive-sensors are provided wherein networks or nanoframeworks of
 conducting polymer nanowires are electrochem. grown from pre-polymer
 solns. in the junction gap located between electrode pairs.
 IT 57-48-7, Fructose, analysis
 (electrochem. fabrication of conducting polymer nanowire sensors)
 RN 57-48-7 HCA
 CN D-Fructose (CA INDEX NAME)

Absolute stereochemistry.



IT 30418-59-8
 (electrochem. fabrication of conducting polymer nanowire sensors)
 RN 30418-59-8 HCA
 CN Boronic acid, B-(3-aminophenyl)- (CA INDEX NAME)



CC 79-2 (Inorganic Analytical Chemistry)
 Section cross-reference(s): 9
 IT Polyaniines
 (electrochem. fabrication of conducting polymer nanowire sensors)
 IT 50-99-7, D-Glucose, analysis 57-48-7, Fructose, analysis
 57-50-1, Sucrose, analysis 64-17-5, Ethanol, analysis 67-56-1,
 Methanol, analysis 67-64-1, Acetone, analysis 67-66-3,
 Chloroform, analysis 7647-01-0, Hydrogen chloride, analysis
 7664-41-7, Ammonia, analysis
 (electrochem. fabrication of conducting polymer nanowire sensors)
 IT 7440-06-4, Platinum, uses 7440-32-6, Titanium, uses 7631-86-9,
 Silicon dioxide, uses 25233-30-1, Polyaniline
 30604-81-0, Polypyrrole 126213-51-2, Poly(ethylenedioxythiophene)
 (electrochem. fabrication of conducting polymer nanowire sensors)
 IT 62-53-3, Aniline, reactions 109-97-7, Pyrrole 30418-59-8
 126213-50-1, 3,4-Ethylenedioxythiophene
 (electrochem. fabrication of conducting polymer nanowire sensors)

L51 ANSWER 2 OF 8 HCA COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 143:27368 HCA Full-text
 TITLE: Switchable self-doped polyaniline and
 production method thereof
 INVENTOR(S): Deore, Bhavana A.; Yu, Insun; Freund, Michael S.
 PATENT ASSIGNEE(S): University of Manitoba, Can.
 SOURCE: PCT Int. Appl., 30 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2005054338	A1	20050616	WO 2004-CA2083	200412 06

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 GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP,
 KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
 MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,
 SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
 VC, VN, YU, ZA, ZM, ZW
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,
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 NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA,
 GN, GQ, GW, ML, MR, NE, SN, TD, TG
 CA 2548510 A1 20050616 CA 2004-2548510

200412
 06

EP 1694745 A1 20060830 EP 2004-802260

200412
 06

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
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 US 20070093644 A1 20070426 US 2006-581752

200612
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PRIORITY APPLN. INFO.: US 2003-526603P P

200312
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WO 2004-CA2083 W

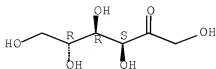
200412
 06

AB A substituted polyaniline whose self-doped state can be controlled via complexation between boronic acid groups along the backbone with D-fructose in the presence of fluoride is described. For the first time, this allows the formation of a water-soluble, self-doped conducting polymer under the polymerization conditions. In turn this facilitates the growth of polyaniline over a wider pH range.

IT 57-48-7, D-Fructose, uses 7681-49-4, Sodium fluoride, uses (dopant; production of water-soluble switchable self-doped polyanilines)

RN 57-48-7 HCA
 CN D-Fructose (CA INDEX NAME)

Absolute stereochemistry.



RN 7681-49-4 HCA
 CN Sodium fluoride (NaF) (CA INDEX NAME)

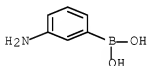
F—Na

IT 280563-63-5P, 3-Aminophenyl boronic acid homopolymer
 853074-12-1P
 (non-self-doped form; production of water-soluble switchable self-doped
 polyanilines)

RN 280563-63-5 HCA
 CN Boronic acid, B-(3-aminophenyl)-, homopolymer (CA INDEX NAME)

CM 1

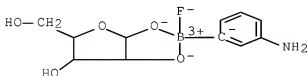
CRN 30418-59-8
 CMF C6 H8 B N O2



RN 853074-12-1 HCA
 CN Borate(1-), (3-aminophenyl)[β-D-arabinofuranosato(2-)-
 κO1,κO2]fluoro-, (T-4)-, homopolymer (9CI) (CA INDEX
 NAME)

CM 1

CRN 654084-45-4
 CMF C11 H14 B F N O5
 CCI CCS



IC ICM C08G0073-02
 ICS H01B0001-12
 CC 37-3 (Plastics Manufacture and Processing)

ST switchable self doped polyaniline boronic acid
 IT Conducting polymers
 (production of water-soluble switchable self-doped polyanilines
)
 IT Polyanilines
 (production of water-soluble switchable self-doped polyanilines
)
 IT 57-48-7, D-Fructose, uses 7681-49-4, Sodium
 fluoride, uses
 (dopant; production of water-soluble switchable self-doped
 polyanilines)
 IT 280563-63-5F, 3-Aminophenyl boronic acid homopolymer
 853074-12-1F
 (non-self-doped form; production of water-soluble switchable self-
 doped
 polyanilines)
 IT 7727-54-0, Ammonium persulfate
 (polymerization catalyst; production of water-soluble switchable
 self-doped
 polyanilines)

RE

- (1) Deore, B; Analyst 2003, V128, P803 HCA
- (2) Freund; US 20020029979 2002 HCA
- (3) Freund; US 6797152 2004 HCA
- (4) Galaj; CA 2086820 1992 HCA
- (5) Shimizu; CA 2229089 1997 HCA
- (6) Shoji, E; J Am Chem Soc 2002, V124, P12486 HCA
- (7) Wudl; CA 1277989 1990 HCA

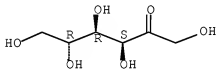
L51 ANSWER 3 OF 8 HCA COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 140:396572 HCA Full-text
 TITLE: Electroactivity of Electrochemically Synthesized
 Poly(Aniline Boronic Acid) as
 a Function of pH: Role of Self-Doping
 AUTHOR(S): Deore, Bhavana A.; Hachey, Sarah; Freund,
 Michael S.
 CORPORATE SOURCE: Department of Chemistry, University of Manitoba,
 Winnipeg, MB, R3T 2N2, Can.
 SOURCE: Chemistry of Materials (2004), 16(8),
 1427-1432
 CODEN: CMATEX; ISSN: 0897-4756
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The influence of pH on the electrochem. behavior of electropolymd.,
 self-doped poly(aniline boronic acid) thin films in the presence of D-
 fructose was studied with voltammetry and potentiometry in phosphate-
 buffered saline solution The complexation of boronic acid with D-
 fructose and subsequent formation of self-doped polymer extends the
 electroactivity of poly(aniline boronic acid) to neutral and alkaline
 media in a manner similar to that of other self-doped polyanilines.
 However, the electroactivity exhibits more complex pH-dependent
 behavior, suggesting a transition between species involved in the
 self-doping process. Results obtained with in situ UV-visible

spectroscopy and ex situ FTIR spectroscopy in conjunction with ¹¹B and ¹⁹F NMR studies of monomeric species indicate that the self-doped structure of poly(aniline boronic acid) is pH sensitive and that the anionic boronic acid complex involves either fluoride or hydroxide depending on pH.

IT 57-48-7, D-Fructose, uses 7681-49-4, Sodium fluoride (NaF), uses
(cyclic voltammetry of poly(aminophenylboronic acid) in phosphate-buffered saline stock solution containing fructose and NaF
as function of pH and electroactivity role of self-doping)
RN 57-48-7 HCA
CN D-Fructose (CA INDEX NAME)

Absolute stereochemistry.



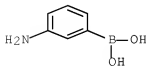
RN 7681-49-4 HCA
CN Sodium fluoride (NaF) (CA INDEX NAME)

F—Na

IT 280563-63-5P, Poly(3-aminophenylboronic acid)
(cyclic voltammetry of poly(aminophenylboronic acid) in phosphate-buffered saline stock solution containing fructose and NaF
as function of pH and electroactivity role of self-doping)
RN 280563-63-5 HCA
CN Boronic acid, B-(3-aminophenyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 30418-59-8
CMF C6 H8 B N O2

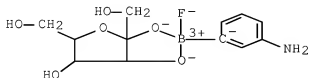


IT 685828-70-0 685828-71-1

(formation and electropolymerization and electroactivity of electrochem. synthesized poly(anilineboronic acid) as function of pH and role of self-doping)

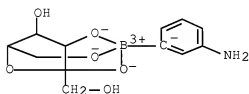
RN 685828-70-0 HCA

CN Borate(1-), (3-aminophenyl)fluoro[β -D-fructofuranosato(2-)- κ O2, κ O3]-, (T-4)- (CA INDEX NAME)



RN 685828-71-1 HCA

CN Borate(1-), (3-aminophenyl)[β -D-fructofuranosato(3-)- κ O2, κ O3, κ O6]-, (T-4)- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

Section cross-reference(s): 35

ST electroactivity electrochem prep'd self doped

polyanilineboronic acid function pH; cyclic voltammetry

polyaminophenylboronic acid film fructose sodium fluoride pH

IT 57-48-7, D-Fructose, uses 7681-49-4, Sodium

fluoride (NaF), uses

(cyclic voltammetry of poly(aminophenylboronic acid) in

phosphate-buffered saline stock solution containing fructose and NaF

as

function of pH and electroactivity role of self-doping)

IT 280563-63-5P, Poly(3-aminophenylboronic acid)

(cyclic voltammetry of poly(aminophenylboronic acid) in

phosphate-buffered saline stock solution containing fructose and NaF

as

function of pH and electroactivity role of self-doping)

IT 685828-70-0 685828-71-1

(formation and electropolymerization and electroactivity of electrochem.

synthesized poly(anilineboronic acid) as

function of pH and role of self-doping)

RE

(1) Chen, S; J Am Chem Soc 1994, V116, P7939 HCA

(2) Cooper, C; Chem Commun 1998, P1365 HCA

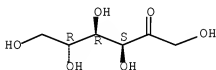
- (3) Cushman, R; J Electroanal Chem 1986, V291, P335
- (4) Deore, B; Analyst 2003, V128, P803 HCA
- (5) Deore, B; J Am Chem Soc 2004, V126, P52 HCA
- (6) Diaz, A; Handbook of Conducting Polymers 1986, V1, P81
- (7) Holze, R; Synth Met 2002, V131, P61
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- (19) Malinauskas, A; Synth Met 1999, V107, P75 HCA
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- (23) Nicolas, M; J Org Chem 2000, V9, P1703
- (24) Norrid, J; J Chem Soc, Perkin Trans 2 1996, P2583
- (25) Ofer, D; J Am Chem Soc 1990, V112, P7869 HCA
- (26) Paul, E; J Phys Chem 1985, V89, P1441 HCA
- (27) Sariciftci, N; J Chem Phys 1990, V92, P4530 HCA
- (28) Shoji, E; J Am Chem Soc 2001, V123, P3383 HCA
- (29) Shoji, E; J Am Chem Soc 2002, V124, P12486 HCA
- (30) Shoji, E; Langmuir 2001, V17, P7183 HCA
- (31) Shull, B; J Pharm Sci 2000, V89, P215 HCA
- (32) Springsteen, G; Tetrahedron 2002, V58, P5291 HCA
- (33) Stilwell, D; J Electrochem Soc 1989, V136, P427 HCA
- (34) Tang, H; Synth Met 1998, V96, P43 HCA
- (35) Wan, Q; Chem J Chin Univ 1997, V18, P226 HCA
- (36) Wei, X; Synth Met 1995, V74, P123 HCA
- (37) Wei, Y; J Phys Chem 1989, V93, P495 HCA
- (38) Westmark, P; J Chromatogr A 1994, V664, P123 HCA
- (39) Yue, J; J Am Chem Soc 1991, V113, P2665 HCA

L51 ANSWER 4 OF 8 HCA COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 139:239265 HCA Full-text
 TITLE: Saccharide imprinting of poly(aniline boronic acid) in the presence of fluoride
 AUTHOR(S): Deore, Bhavana; Freund, Michael S.
 CORPORATE SOURCE: Department of Chemistry, University of Manitoba, Winnipeg, MB, R3T 2N2, Can.
 SOURCE: Analyst (Cambridge, United Kingdom) (2003), 128(6), 803-806
 CODEN: ANALAO; ISSN: 0003-2654
 PUBLISHER: Royal Society of Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A new approach for the electrosynthesis of saccharide-imprinted poly(aniline boronic acid) is described. The method involves the

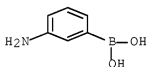
formation of a saccharide-aminophenylboronic acid complex in the presence of fluoride to allow the electropolymerization of a self-doped, molecularly imprinted **polyaniline**. The formation of the anionic monomer complex enables electrochem. polymerization at near neutral pH (5-7) ensuring the incorporation of saccharide in the resulting, self-doped polymer. Films were imprinted with D-fructose where saccharide-aminophenylboronic acid complexation occurred in the presence of one equivalent of fluoride. The selectivity toward D-fructose relative to D-glucose showed an increase of over 25% as a result of imprinting. In addition to the enhanced selectivity, to the best of the authors' knowledge this is the 1st example of the electropolymerization of a self-doped **polyaniline** homopolymer under neutral pH conditions.

IT 57-48-7, D-Fructose, analysis
 (analyte and imprinting mol.; saccharide imprinting of
 poly(aniline boronic acid) in the presence of
 fluoride)
 RN 57-48-7 HCA
 CN D-Fructose (CA INDEX NAME)

Absolute stereochemistry.



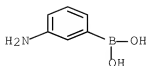
IT 30418-59-8, 3-Aminophenylboronic acid
 (in preparation of saccharide imprinting of poly(
 aniline boronic acid))
 RN 30418-59-8 HCA
 CN Boronic acid, B-(3-aminophenyl)- (CA INDEX NAME)



IT 280563-63-5DP, Poly(3-aminophenylboronic acid), fructose
 imprinted
 (saccharide imprinting of poly(aniline
 boronic acid) in the presence of fluoride)
 RN 280563-63-5 HCA
 CN Boronic acid, B-(3-aminophenyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 30418-59-8
 CMF C6 H8 B N O2



CC 80-5 (Organic Analytical Chemistry)
 ST saccharide imprinting **polyanilineboronic acid fluoride**
 presence
 IT 57-48-7, D-Fructose, analysis
 (analyte and imprinting mol.; saccharide imprinting of
poly(aniline boronic acid) in the presence of
 fluoride)
 IT 30418-59-8, 3-Aminophenylboronic acid
 (in preparation of saccharide imprinting of **poly(**
aniline boronic acid))
 IT 16984-48-8, Fluoride, analysis
 (saccharide imprinting of **poly(aniline**
boronic acid) in the presence of fluoride)
 IT 280563-63-5DP, Poly(3-aminophenylboronic acid), fructose
 imprinted
 (saccharide imprinting of **poly(aniline**
boronic acid) in the presence of fluoride)

RE

- (1) Barker, S; Carbohydr Res 1973, V26, P33 HCA
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- (3) Deore, B; Anal Chem 2000, V72, P3989 HCA
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L51 ANSWER 5 OF 8 HCA COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 138:149754 HCA Full-text

TITLE: **Poly(aniline)** as a
 non-enzymatic sugar sensor: potentiometric
 sensors based on the inductive effect

AUTHOR(S): Shoji, Eiichi; Freund, Michael S.

CORPORATE SOURCE: Molecular Materials Research Center, Beckman
 Institute, California Institute of Technology,
 Pasadena, CA, 91125, USA

SOURCE: Proceedings - Electrochemical Society (

2001), 2001-18(Chemical and Biological
Sensors and Analytical Methods II), 293-303
CODEN: PESODO; ISSN: 0161-6374
Electrochemical Society

PUBLISHER:
DOCUMENT TYPE:
LANGUAGE:

Journal
English

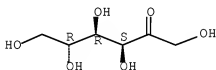
AB The electrochem. potential poly(aniline boronic acid) has been shown to be sensitive to the complexation reaction between the boronic acids and various diols. The change in potential is consistent with the expected influence of the altered inductive effect arising from complexation on the pKa of the polymer. In addition the relative sensitivity of the electrode to different diols is consistent with reported binding consts. The role of local pH changes as well as the presence of polyanions in the films on sensitivity has been explored.

IT 57-48-7, Fructose, analysis
(Poly(aniline) as non-enzymic sugar sensor)

RN 57-48-7 HCA

CN D-Fructose (CA INDEX NAME)

Absolute stereochemistry.



IT 139289-90-0
(Poly(aniline) as non-enzymic sugar sensor)

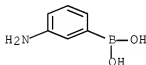
RN 139289-90-0 HCA

CN Boronic acid, B-(3-aminophenyl)-, polymer with benzenamine (CA INDEX NAME)

CM 1

CRN 30418-59-8

CMF C6 H8 B N O2



CM 2

CRN 62-53-3

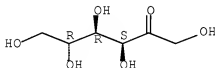
CMF C6 H7 N



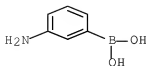
- CC 9-7 (Biochemical Methods)
- ST ~~polyaniline~~ sugar biosensor
- IT Biosensors
Cyclic voltammetry
Enzyme electrodes
Films
Inductive effect
(~~Poly(aniline)~~ as non-enzymic sugar sensor)
- IT Carbohydrates, analysis
(~~Poly(aniline)~~ as non-enzymic sugar sensor)
- IT Polymerization
(electrochem.; ~~Poly(aniline)~~ as non-enzymic sugar sensor)
- IT Sensors
(potentiometric; ~~Poly(aniline)~~ as non-enzymic sugar sensor)
- IT 50-99-7, D-Glucose, analysis 57-48-7, Fructose, analysis 97-30-3, α -Methyl-D-glucoside
(~~Poly(aniline)~~ as non-enzymic sugar sensor)
- IT 54802-94-7 139289-90-0
(~~Poly(aniline)~~ as non-enzymic sugar sensor)
- RE
- (1) Barker, S; Carbohydrate Research 1973, V26, P33 HCA
 - (2) Bartlett, P; J Chem Soc, Faraday Trans 1996, V92, P4137 HCA
 - (3) Bevington, J; Radical polymerization 1961
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 - (9) Hine, J; Structural Effects on Equilibria in Organic Chemistry 1975
 - (10) Kikuchi, A; Anal Chem 1996, V68, P823 HCA
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 - (12) MacDiarmid, A; Farad Diss Chem Soc 1989, V88, P317 HCA
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 - (14) Menardo, C; Synth Met 1988, V25, P311 HCA
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 - (19) Quillard, S; Phys Rev B: Condens Matter 1994, V50, P12498 HCA
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L51 ANSWER 6 OF 8 HCA COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 138:10980 HCA Full-text
 TITLE: Potentiometric saccharide detection based on the
 pKa changes of poly(aniline
 boronic acid)
 AUTHOR(S): Shoji, Eiichi; Freund, Michael S.
 CORPORATE SOURCE: Molecular Material Research Center Beckman
 Institute, California Institute of Technology,
 Pasadena, CA, 91125, USA
 SOURCE: Journal of the American Chemical Society (
 2002), 124(42), 12486-12493
 CODEN: JACSAT; ISSN: 0002-7863
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A novel approach for the potentiometric detection of saccharides using
 poly(aniline boronic acid) is presented. A model is described in which
 the electrochem. potential is sensitive to the change in the pKa of
 the conducting polymer as a result of boronic acid-diol complexation.
 In this system, boronic acid complexation is the mode of transduction
 and it is manifested as changes in the electrochem. potential of the
 polymer with remarkable selectivity. Characteristics of both
 transient and steady-state response associated with the complexation
 are discussed. The presence of Nafion and fluoride during the
 electrochem. polymerization of 3-aminophenylboronic acid impact the
 sensitivity and the stability of the electrode response. The sensor
 sensitivity is improved significantly by increasing the concentration
 of sodium fluoride during the polymerization. Finally, the nature of
 the selectivity of the boronic acid-diol reaction under these
 conditions is explored by using MO calcns.
 IT 57-48-7, D-Fructose, analysis
 (analyte; potentiometric saccharide detection based on the pKa
 changes of poly(anilineboronic acid))
 RN 57-48-7 HCA
 CN D-Fructose (CA INDEX NAME)

Absolute stereochemistry.



IT 30418-59-8, 3-Aminophenylboronic acid
 (in preparation of poly(anilineboronic acid))
 RN 30418-59-8 HCA
 CN Boronic acid, B-(3-aminophenyl)- (CA INDEX NAME)



IT 280563-63-5F, Poly(3-aminophenylboronic acid)
(potentiometric saccharide detection based on the pKa changes of
poly(anilineboronic acid))

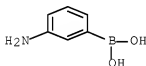
RN 280563-63-5 HCA

CN Boronic acid, B-(3-aminophenyl)-, homopolymer (CA INDEX NAME)

CM 1

CRN 30418-59-8

CMF C6 H8 B N O2



CC 80-2 (Organic Analytical Chemistry)

Section cross-reference(s): 72

ST saccharide detection potentiometry **polyanilineboronic acid**
electrode

IT Glycols, analysis

Monosaccharides

(analytes; potentiometric detection based on the pKa changes of
poly(anilineboronic acid))

IT Polyoxyalkylenes, analysis

(fluorine- and sulfo-containing, ionomers; in preparation of **poly**
(anilineboronic acid))

IT Fluoropolymers, analysis

(polyoxyalkylene-, sulfo-containing, ionomers; in preparation of
poly(anilineboronic acid))

IT Ionomers

(polyoxyalkylenes, fluorine- and sulfo-containing; in preparation of
poly(anilineboronic acid))

IT Electrodes

Sensors

(potentiometric; potentiometric saccharide detection based on the
pKa changes of **poly(anilineboronic acid)**)

IT 50-99-7, D-Glucose, analysis 57-48-7, D-Fructose, analysis

97-30-3, α -Methyl-D-glucoside 1460-57-7,

trans-1,2-Cyclohexanediol 1792-81-0, cis-1,2-Cyclohexanediol

5057-98-7, cis-1,2-Cyclopentanediol 5057-99-8,

trans-1,2-Cyclopentanediol

(analyte; potentiometric saccharide detection based on the pKa

- changes of poly(anilineboronic acid))
- IT 7440-44-0, Carbon, analysis
(glassy, electrode; potentiometric saccharide detection based on the pKa changes of poly(anilineboronic acid) on glassy carbon electrode)
- IT 16984-48-8, Fluoride, analysis
(in preparation of poly(anilineboronic acid))
- IT 30418-59-8, 3-Aminophenylboronic acid
(in preparation of poly(anilineboronic acid))
- IT 280563-63-5P, Poly(3-aminophenylboronic acid)
(potentiometric saccharide detection based on the pKa changes of poly(anilineboronic acid))

RE

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L51 ANSWER 7 OF 8 HCA COPYRIGHT 2009 ACS on STN
 ACCESSION NUMBER: 136:160592 HCA Full-text
 TITLE: Sensors and sensing methods for detecting
 analytes based on changes in pKa of a sensing
 polymer
 INVENTOR(S): Freund, Michael S.; Shoji, Eiichi
 PATENT ASSIGNEE(S): California Institute of Technology, USA
 SOURCE: PCT Int. Appl., 30 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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WO 2002010731	A1	20020207	WO 2001-US24106	200107 31

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 20020029979 A1 20020314 US 2001-919657

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31

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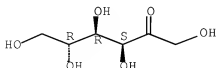
AB Sensor systems and sensing methods for detecting one or more analytes in a fluid. A sensor includes a polymer capable of undergoing a proton-coupled redox reaction. The polymer includes a plurality of reactive substituents capable of undergoing a reaction with an analyte. Upon exposure of the sensor to a fluid containing the analyte, a response is detected based on a change in the pKa of the polymer.

IT 57-48-7, D-Fructose, analysis
 (sensors and sensing methods for detecting analytes based on changes in pKa of sensing polymer)

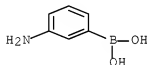
RN 57-48-7 HCA

CN D-Fructose (CA INDEX NAME)

Absolute stereochemistry.



IT 280563-63-5, 3-Aminophenyl boronic acid homopolymer
 (sensors and sensing methods for detecting analytes based on
 changes in pKa of sensing polymer)
 RN 280563-63-5 HCA
 CN Boronic acid, B-(3-aminophenyl)-, homopolymer (CA INDEX NAME)
 CM 1
 CRN 30418-59-8
 CMF C6 H8 B N O2



IT 7681-49-4, Sodium fluoride (NaF), analysis
 (sensors and sensing methods for detecting analytes based on
 changes in pKa of sensing polymer)
 RN 7681-49-4 HCA
 CN Sodium fluoride (NaF) (CA INDEX NAME)

F—Na

IC ICM G01N0027-26
 ICS G01N0021-47
 CC 79-6 (Inorganic Analytical Chemistry)
 IT **Polyanilines**
 (sensors and sensing methods for detecting analytes based on
 changes in pKa of sensing polymer)
 IT 50-99-7, D-Glucose, analysis 57-48-7, D-Fructose, analysis
 97-30-3, α -Methyl-D-glucoside 16984-48-8, Fluoride, analysis
 (sensors and sensing methods for detecting analytes based on
 changes in pKa of sensing polymer)
 IT 25233-30-1, **Polyaniline** 25667-98-5, Poly
 o-phenylenediamine 25668-01-3, Poly o-aminophenol 75788-67-9,
 Polyphenothiazine 102679-09-4, Poly aminonaphthalene 113254-03-8
 280563-63-5, 3-Aminophenyl boronic acid homopolymer
 (sensors and sensing methods for detecting analytes based on
 changes in pKa of sensing polymer)
 IT 7681-49-4, Sodium fluoride (NaF), analysis
 (sensors and sensing methods for detecting analytes based on
 changes in pKa of sensing polymer)

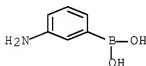
RE

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ACCESSION NUMBER: 131:145219 HCA Full-text
 TITLE: A **polyaniline** with near-infrared optical response to saccharides
 AUTHOR(S): Pringsheim, Erika; Terpetschnig, Ewald; Piletsky, Sergey A.; Wolfbeis, Otto S.
 CORPORATE SOURCE: Inst. Analytical Chem., Chemo- Biosensors, Univ. Regensburg, Regensburg, D-93040, Germany
 SOURCE: Advanced Materials (Weinheim, Germany) (1999), 11(10), 865-868
 CODEN: ADVMEW; ISSN: 0935-9648
 PUBLISHER: Wiley-VCH Verlag GmbH
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A sugar-binding polymer film capable of continuous sensing was prepared by copolymn. of aniline and 3-aminophenylboronic acid and ammonium peroxodisulfate oxidation. Its absorption spectrum between 500-800 nm undergoes large changes on addition of various saccharides (glucose, fructose, sorbitol, mannitol, saccharose, and glycerol) at neutral pH, changes which are dependent on the saccharide concentration and are fully reversible. These films represent an interesting alternative to enzyme-based glucose sensors because of their ease of preparation, compatibility with light emitting devices and diode laser light sources, and their thermal and temporal stability.
 IT 139289-90-GP, Aniline-3-aminophenylboronic acid copolymer (in oxidized state; preparation and saccharide-sensing properties of aniline-aminophenylboronic acid copolymer optical sensor)
 RN 139289-90-0 HCA
 CN Boronic acid, B-(3-aminophenyl)-, polymer with benzenamine (CA INDEX NAME)

CM 1

CRN 30418-59-8
 CMF C6 H8 B N O2



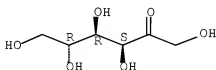
CM 2

CRN 62-53-3
 CMF C6 H7 N



IT 57-48-7, Fructose, analysis
 (preparation and saccharide-sensing properties of
 aniline-aminophenylboronic acid copolymer optical sensor)
 RN 57-48-7 HCA
 CN D-Fructose (CA INDEX NAME)

Absolute stereochemistry.



CC 37-5 (Plastics Manufacture and Processing)
 ST polyaniline sugar sensor prepn; aniline aminophenylboronic
 acid copolymn polyaniline prepn; saccharide detn
 polyaniline sensor; IR absorption polyaniline
 IT Polyanilines
 (preparation and saccharide-sensing properties of
 aniline-aminophenylboronic acid copolymer optical sensor)
 IT 139289-90-0P, Aniline-3-aminophenylboronic acid copolymer
 (in oxidized state; preparation and saccharide-sensing properties of
 aniline-aminophenylboronic acid copolymer optical sensor)
 IT 50-99-7, Glucose, analysis 56-81-5, Glycerol, analysis
 57-48-7, Fructose, analysis 57-50-1, Saccharose, analysis
 69-65-8, Mannitol
 (preparation and saccharide-sensing properties of
 aniline-aminophenylboronic acid copolymer optical sensor)

RE

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